



**LANDSCAPE IRRIGATION ASSOCIATION
OF SOUTH AFRICA (LIA)**

During the Development Stages of the South African
Landscape Irrigation Industry
Quality of Design, Installation and Maintenance was of concern

With ever increasing need for
Professional Standards and Water Conservation
Regulation of Practices became Necessary

As Result
With the objective of promoting Professional Excellence
The Landscape Irrigation Association of SA (LIA)
A National Voluntary Non Profit Organization formed in 1986

**LANDSCAPE IRRIGATION ASSOCIATION
OF SOUTH AFRICA (LIA)**

Aims and Objectives

Improving and Maintaining the Standing of the Landscape Irrigation
Industry with Emphasis on Ethics, Conduct and Standards

Fostering Awareness among Professional Bodies, Developers,
Public Authorities and the General Public of the
Existence and Aims of the LIA

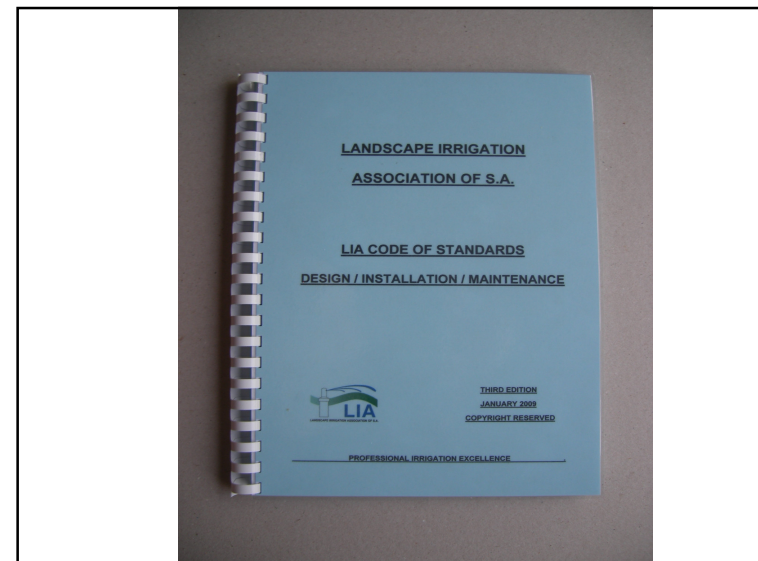
Encouraging High Standards of Water Conservation, Irrigation Design
and Quality of Workmanship through Training and Certification
In accordance with the National Water Supply regulations Act
and the SA Qualifications Authority

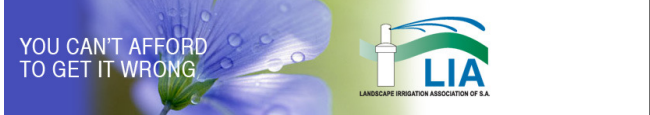
**LANDSCAPE IRRIGATION ASSOCIATION
OF SOUTH AFRICA (LIA)**

With the Objective of Professional Excellence
by Setting
Design – Installation – Maintenance – Criteria
resulted in
The first LIA Code of Standards
LIA Training Programs and Product Promotions

Now some 20 Years later
So Many New Landscapes
So Many More Requirements

As Result the Completely all New Unique Upgraded 100 Page
2009 LIA Code of Standards Manual





WHY -- CODE OF STANDARDS

Landscape Ornamental Horticulture Irrigation
is an exact Science of Irrigation Engineering
Necessitating Regulation of Practices

The Design and Assembly of a Landscape Irrigation System is a
Complex Hydraulic Process of Agronomy, Horticulture, Hydrology,
Sprinklers, Pipework, Valves, Pumps, Automatic Controllers,
Fertigation, Electrics, Installation , Maintenance.

A Code of Standards being the Infrastructure of
Equipment, Selection, Application, Installation
based on
International and Local Recognized Parameters

A Compliance Level and Technical Source
for
Professional Excellence and Water Conservation

2009 LIA CODE OF STANDARDS MANUAL

THE 2009 LIA CODE OF STANDARDS MANUAL
IS NOT A DESIGN MANUAL
BUT
A COMPREHENSIVE STANDARDS REFERENCE SOURCE
AS TO THE
INFRASTRUCTURE OF PROFESSIONAL LANDSCAPE IRRIGATION
PERTAINING TO THE CORRECTNESS OF :

2009 LIA CODE OF STANDARDS MANUAL

TENDER SPECIFICATIONS – DESIGN -- APPLICATION
INSTALLATION AND MAINTENANCE
OF
LANDSCAPE IRRIGATION EQUIPMENT
FOR
SOUTH AFRICAN CONDITIONS

2009 LIA CODE OF STANDARDS MANUAL

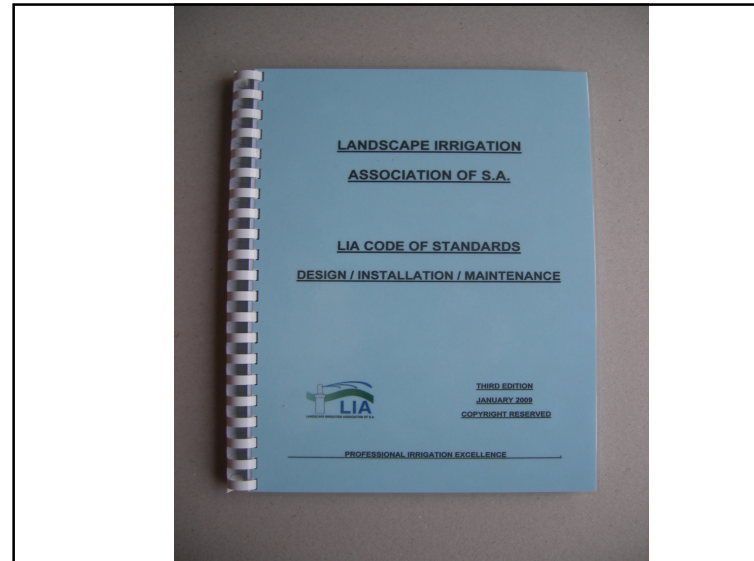
USER FRIENDLY – TO THE POINT – 100 PAGES FRONT & BACK
PROFESSIONAL STANDARDS – WATER CONSERVATION
ADAPTED FOR SOUTH AFRICAN CONDITIONS

MANDATORY COMPLIANCE LEVEL
FOR ALL MEMBERS OF THE
LANDSCAPE IRRIGATION ASSOCIATION of SA (LIA)

2009 LIA CODE OF STANDARDS MANUAL

**ONLY WHERE COMPLIANCE IMPRACTICABLE
MAY APPROVED VARIATIONS BY ALL PARTIES CONCERNED
MUST BE AGREED TO IN WRITING**

**IT IS ESSENTIAL THAT ALL LIA MEMBERS IRRESPECTIVE OF
MEMBERSHIP CLASSIFICATION BE IN POSSESSION
OF THE NEW 2009 LIA CODE OF STANDARDS
AND FAMILIAR WITH THE CONTENTS**



ABOUT THIS MANUAL

This newly formatted Standards Manual is a Unique Presentation of
Data based on the Original Code of Standards with additional
Information from Local and International Sources, providing Concise
Compliance Levels for Professional Product Application, Design,
Installation, Maintenance and a

Must have Manual

for

Anyone involved with Landscape Irrigation.

The format is in chronological order
and encompasses the following :-

PREFACE

The Landscape Irrigation Association of S.A. (LIA), formally known as the Turf Irrigation Association (TIA), is a National Voluntary Non Profit Organization formed in 1986, with the objective of promoting Professional Excellence by setting : Criteria – Design – Training – Installation – Maintenance : through a Code of Standards and registered with the SA Green Industries Council (SAGIC).

There is a great deal involved in the correct design, installation and maintenance of Irrigation Systems, and the purpose of this LIA Code of Standards Manual is to assist Contractors, Dealers, Specifiers, Developers, Architects and Evaluators in the correctness of Application, Installation and Maintenance of Landscape Irrigation Systems for South African conditions.

This 3rd Edition January 2009 LIA Code of Standards Manual is an upgrade of the 2nd Edition July 2005, and has been compiled from proven and reliable Sources by a team of Experts, and formulated as a safeguard to ensure efficient and trouble free systems, providing much sought after data that is not readily available or known, and is complementary to the LIA Landscape Irrigation Design Manual, as well as the Manufacturers Equipment Product, Installation and Maintenance Catalogues / Manuals.

Warranty Compliance is included, as also International Technical Data and Terminology, and to ensure continuous efficient Waterwise Operation - Basic Installation and Maintenance.

It is intended for all levels of Personnel and Professional Bodies seeking Information and Technology, and meets with the ever increasing need for Professional Competence and Warranty Compliance, and provides Concise and Reliable Information in one compact Manual that can be readily accessed, as and when needed for : General Reference – Design Criteria – Installation – Maintenance – Specifications -- Tender Documentation – Disputes.

ACKNOWLEDGEMENTS

Acknowledgement is made to the Local and Overseas Manufacturers of : Irrigation Equipment, Pipes, Valves, Pumps, Electrics and the South African Landscapers Institute (SALI), SA Nursery Association (SANA), SA Irrigation Institute (SABI), SA Institute for Agricultural Engineering (ARC-IAE), SA Bureau of Standards (SABS / SANS), Rand Water (Water Wise), Borehole Water Association of Southern Africa, USA Irrigation Association (IA), British Turf & Landscape Irrigation Association (BTLIA) and the many other Sources of Reference.

Acknowledgement is also made to the major South African and Overseas Landscape Irrigation Equipment Manufacturers and their South African Distributors towards the Production Costs of this Manual, without which Publication would not have been possible.

DISCLAIMER

Whilst every effort has been made to ensure the accuracy of this LIA Code of Standards Manual, it is issued on the understanding that no responsibility can be accepted for any inadvertent inaccuracy or for incorrect usage of information herein. If any doubt arises and before taking any indiscriminate action, refer to the LIA for Assistance and Clarification.

The Landscape Irrigation Association of S.A. (LIA) and its Office Bearers take no responsibility for any loss or damage incurred by any Person Whomsoever, as result of Misinterpretation and or Noncompliance of the Information contained in this Manual.

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LANDSCAPE IRRIGATION ASSOCIATION OF S.A. 2009

LANDSCAPE IRRIGATION ASSOCIATION OF S.A.
LIA CODE OF STANDARDS
DESIGN / INSTALLATION / MAINTENANCE
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Section 6. LANDSCAPE IRRIGATION SPRINKLERS
Section 7. LANDSCAPE IRRIGATION PIPEWORK
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Acknowledgements
Disclaimer
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Inside Contents Page. About This Manual

PROFESSIONAL IRRIGATION EXCELLENCE

Not many are familiar with the logistics of South African Irrigation, especially Newcomers to the Industry, resulting in the need to make known the South African Irrigation Scenario, Application of Standards, Design Norms, Agronomy and Hydrology, hence the inclusion of the following

Section 1 - Introduction : A résumé of the need for a Code of Standards, Waterwise Irrigation and Professional Excellence, not as a Design Manual but as a fully Comprehensive Standards Reference Source and Generic Product Terminology .

Section 2 - Implementation of Standards : The mandatory Compliance Requirements for LIA Members, with assistance to LIA Members in the case of Disputes and the Landscape Irrigation Industry Approval of the LIA Code of Standards.

Section 3 - Design Norms : The Design Parameters pertaining to the Application of Equipment as listed in Sections 6 to 12.

Section 4 - Agronomy : The Relationship between Water, Plants, Soils and Climate relative to the need for Waterwise Irrigation.

Section 5 - Hydrology : The Relationship between Water Quality, Plant Growth and Water Sources relative to Waterwise Irrigation.

Being the Products used in Landscape Irrigation in a format of – Description, Application, Installation, Auxiliaries, Technical Data, Appendix – All cross referenced to whatever other applicable Sections in this Manual and the Manufacturers Catalogues – and to avoid conflict with Propriety Trade Trade Names – Generic Product Terminology used.

Section 6 - Sprinklers : Bubblers, Drippers, Micro Sprays, Cone Sprays, Mini Sprinklers, Medium and Large Sprinklers - Riser Pipes, Flex Pipe, Swing Joints, Low Head Drainage, Pop-Ups - Spacings, Application Rate, EU, MPR, UPR, CU, SC.

Section 7 - Pipework : LDPE, HDPE, PVC-U Plastic / Steel Pipes and Fittings - Water Flow & Pressure, Static & Working Pressure - Velocity, Friction Loss, Water Surge / Hammer.

Section 8 - Valves: Remote Control, Manual, Pressure Regulating, Check & Foot Valves, Pressure Relief & Air Valves, Low Head Drainage, Backflow, Vacuum, Flushing Valves & Valve Boxes.

Section 9 - Pumps: Centrifugal, Positive Displacement, Submersible, Turbine, Rotary Screw Pumps, 1 & 3 Ph Starters, Variable Speed Control, 24VAC & Press Tank Start - NPSH, kW Power.

Section 10 - Controllers : 230VAC Electro-Mechanical, Computer, Central / Satellite & 9VDC Battery Computer Controllers, Pump Start - Rain, Moisture, Flow Sensors - Surge Protection, 2 Wire Decoders, Radio Link

Section 11 - Fertigation : Venturi, Hydraulic, Electric Dosing - Fertigation Criteria & Selection.

Section 12 - Electrics : Electrical Criteria, 24VAC Controller / Valve Cables, 230VAC Controller Cable, 230 & 400 VAC Pump Cable, Electric Motor Starters, Auto Pump Start, Surge Protection.

Installation, Maintenance and Index were not included in the Previous Code of Standards but being deemed to be of value, are now included

Section 13 - Installation : Personnel, Equipment, Tools, Bye Laws, Vehicles, Insurance - Pipework, Sprinklers, Valves, 24VAC Wiring, Controllers, Auxiliaries, Pumps, Commissioning.

Section 14 - Maintenance : Basic Diagnosis, Electrical and Water Supply Procedures, Tools, Parts, Warranty, Repairs – Sprinklers, Remote Control Valves, Electrics, Automatic Controllers, Pipework, Filters, Pumps.

Section 15 - Index : Consolidation of all relevant Data and whatever in Alphabetical order, for the ease of Reference and Locating Information under : Section – Page – Appendix.

Section 16 - Irrigation Industry : A Matrix of Major SA and Overseas Manufacturers and their SA Distributors who Sponsored Production Costs and Publication of this Manual, and details details of the LIA Offices, Members, Distributors and Contractors.

Professional Irrigation Excellence



**YOU CAN'T AFFORD
TO GET IT WRONG**

LIA
LANDSCAPE IRRIGATION ASSOCIATION OF S.A.

WHERE TO FROM HERE

**ON GOING PRESENTATIONS TO MAINTAIN LIA PRESENCE
THROUGHOUT SOUTH AFRICA**

**REPRESENTATIVES FROM ALL SEGMENTS OF THE
LANDSCAPE IRRIGATION INDUSTRY
COMMERCIAL AND CONSUMER MARKETS**

**FOUR MANUAL LAUNCHES
LIA GAUTENG - KZN - WESTERN CAPE & SABI**

**TWO MORE MANUAL LAUNCHES PLANNED FOR :
LIA FREE STATE & EASTERN CAPE**

LANDSCAPE IRRIGATION ASSOCIATION OF SA (LIA)

**ON GOING REPRESENTATION TO MAINTAIN LIA PRESENCE
THROUGHOUT SOUTH AFRICA**

**ILASA, SALI, SANA, TECHNIKONS, SPECIFIERS,
ARCHITECTS, PROPERTY DEVELOPERS, CITY PARKS,
GOVERNMENT, WATER SUPPLY AUTHORITIES, MEDIA**

**ON GOING DESIGN, INSTALLATION & PRODUCT TRAINING
IN ACCORDANCE WITH NATIONAL WATER SUPPLY REGULATIONS
AND SOUTH AFRICAN QUALIFICATIONS AUTHORITY**

**ON GOING LIA ADVERTORIALS
COMMERCIAL AND CONSUMER MEDIA
EMPHASIZING USE OF ONLY LIA MEMBERS**

**CODE OF STANDARDS A MANDATORY COMPLIANCE LEVEL
LIA MEMBERS MAY USE THE LIA MANUAL AS SALES TOOL**
